

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Claims 1-34 (Canceled)

35. (Previously Presented) A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision, comprising:

providing a tissue puncture closure device comprising a carrier tube with a filament extending therethrough, an insertion sheath, an anchor, and a sealing plug, the filament connected at a distal end of the carrier tube to the anchor, the anchor seated in a multi-level nest disposed in the carrier tube, the filament also connected to the sealing plug, the sealing plug being located proximal of the anchor for disposition and anchoring about the tissue puncture, wherein the multi-level nest comprises:

a first surface contacting the anchor;

a second surface spaced from the anchor in a direction radially inward relative to the first surface when the anchor is in a undeployed position;

wherein the first surface and the second surface are part of an outer surface of the carrier tube;

inserting the tissue puncture closure device into the percutaneous incision;

deploying the anchor into the tissue puncture by advancing the anchor at least partially out of a distal end of the insertion sheath followed by inserting a portion of the insertion sheath between the anchor and at least one of the first and second surfaces of the multi-level nest to rotate the anchor into a deployed position;

withdrawing the closure device from the percutaneous incision; and

tamping the sealing plug toward the anchor.

36. (Previously Presented) A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision according to claim 35 wherein the deploying the anchor further comprises sliding a monofold tip of the insertion sheath into a gap formed between the anchor and the multi-level nest disposed in the carrier tube.

37. (Previously Presented) A method of reducing anchor shuttle in a subcutaneous tissue puncture sealing device, the tissue puncture sealing device including a carrier tube, an insertion sheath, an anchor, and a sealing plug, the method comprising:

providing a gap that extends between the carrier tube and the anchor in a direction that is transverse to the carrier tube, the gap being created by a multi-level nest in the carrier tube, wherein the multi-level nest comprises:

a first surface contacting the anchor;

a second surface spaced from the anchor in a direction radially inward relative to the first surface when the anchor is in an undeployed position;

wherein the first surface and the second surface are part of an outer surface of the carrier tube;

inserting at least a portion of the insertion sheath into the gap to rotate the anchor into a deployed position.

38. (Original) A method of reducing anchor shuttle in a subcutaneous tissue puncture sealing device according to claim 37 wherein the anchor initially seats in the multi-level nest.

39. (Previously Presented) A method of reducing anchor shuttle in a subcutaneous tissue puncture sealing device, comprising providing a gap according to claim 37, further comprising coupling the puncture sealing device to the insertion sheath, the insertion sheath having a one-way valve allowing the anchor to pass therethrough in one direction, but not allowing the anchor to pass back in an opposite direction.

40. (Canceled)

41. (Previously Presented) The method of sealing the tissue puncture of claim 35 wherein the tissue puncture is a blood vessel puncture.

42. (Previously Presented) The method of sealing the tissue puncture of claim 35 wherein deploying the anchor includes moving the anchor away from the carrier tube and rotating the anchor to be transverse to the carrier tube.

43. (Canceled)

44. (Previously Presented) A method of sealing a tissue puncture comprising:

inserting a tissue puncture closure device into the tissue puncture, the tissue puncture closure device including a carrier tube, an insertion sheath, a sealing plug, and an anchor, the carrier tube including an outer surface, the outer surface including a first surface portion that is in contact with the anchor and a second surface portion that is adjacent to the anchor and recessed in the carrier tube relative to the first surface portion;

inserting at least a portion of the insertion sheath between the anchor and at least one of the first and second surface portions to rotate the anchor;

positioning the sealing plug and the anchor across the tissue puncture to close the tissue puncture.

45. (Previously Presented) The method of claim 44 wherein the tissue puncture is a blood vessel puncture.

46. (Previously Presented) The method of claim 44 wherein the second surface is positioned adjacent to one end of the anchor.

47. (Previously Presented) The method of claim 44 wherein the tissue puncture closure device includes a filament configured to couple the sealing plug and the anchor together across the tissue puncture.

48. (Previously Presented) The method of claim 44 comprising moving the anchor away from the carrier tube and rotating the anchor to be transverse to the carrier tube.

49. (Previously Presented) A method of sealing a tissue puncture comprising:
inserting a tissue puncture closure device into the tissue puncture, the tissue puncture closure device including a carrier tube, an insertion sheath, a sealing plug, and an anchor, an outer surface of the carrier tube including a recess that forms a gap between the anchor and the carrier tube in a direction that is transverse to the carrier tube;

moving a tip of the insertion sheath into the recess in the outer surface of the carrier tube to rotate the anchor;

positioning the sealing plug and the anchor across the tissue puncture to close the tissue puncture.

50. (Canceled)

51. (Previously Presented) The method of claim 49 wherein the tissue puncture is a blood vessel puncture.

52. (Previously Presented) The method of claim 49 wherein the gap is positioned adjacent to one end of the anchor.

53. (Previously Presented) The method of claim 49 wherein the tissue puncture closure device includes a filament configured to couple the sealing plug and the anchor together across the tissue puncture.

54. (Previously Presented) The method of claim 49 comprising moving the anchor away from the carrier tube and rotating the anchor to be transverse to the carrier tube.

55. (Previously Presented) A method of sealing a tissue puncture comprising:
inserting a tissue puncture closure device into the tissue puncture, the tissue puncture closure device including a carrier tube, an insertion sheath, a sealing plug, and an anchor, the carrier tube including an outer surface, the outer surface including a first surface portion that is in contact with the anchor and a recess positioned adjacent to the anchor, the recess extending radially further into the outer surface of the carrier tube than the first surface portion;
inserting at least a portion of the insertion sheath into the recess to rotate the anchor;
positioning the sealing plug and the anchor across the tissue puncture to close the tissue puncture.

56. (Canceled)

57. (Previously Presented) The method of claim 55 wherein the tissue puncture is a blood vessel puncture.

58. (Previously Presented) The method of claim 55 wherein the recess is positioned adjacent to one end of the anchor.

59. (Previously Presented) The method of claim 55 wherein the recess extends between the carrier tube and the anchor to form a gap between the carrier tube and the anchor in a direction that is transverse to the carrier tube.

60. (Previously Presented) The method of claim 55 wherein part of the recess is covered by the anchor.

61. (Previously Presented) The method of claim 55 wherein the tissue puncture closure device includes a filament configured to couple the sealing plug and the anchor together across the tissue puncture.

62. (Previously Presented) The method of claim 55 comprising moving the anchor away from the carrier tube and rotating the anchor to be transverse to the carrier tube.

63. (Previously Presented) A method of sealing a tissue puncture comprising:

inserting a tissue puncture closure device into the tissue puncture, the tissue puncture closure device including a carrier tube, an insertion sheath, a sealing plug, and an anchor, the anchor and the carrier tube being positioned in contact with each other;

deploying the anchor by moving a tip of the insertion sheath into a recess in an outer surface of the carrier tube so that the tip is underneath the anchor before the anchor begins to move from an undeployed position, and distally advancing the insertion sheath in the recess rotates the anchor into a deployed position; and

positioning the sealing plug and the anchor across the tissue puncture to close the tissue puncture.

64. (Previously Presented) The method of claim 63 wherein the tissue puncture is a blood vessel puncture.

65. (Previously Presented) The method of claim 63 wherein the tissue puncture closure device includes a filament configured to couple the sealing plug and the anchor together across the tissue puncture.

66. (Previously Presented) The method of claim 63 wherein the insertion sheath deploys the anchor by moving the anchor away from the carrier tube and rotating the anchor to be transverse to the carrier tube.

67. (Previously Presented) A method of sealing a tissue puncture comprising:

inserting a tissue puncture closure device into the tissue puncture, the tissue puncture closure device including a carrier tube, an insertion sheath, a sealing plug, and an anchor, the anchor including an indentation that forms a gap between the anchor and the carrier tube, the gap being open along a proximal edge of the anchor;

positioning a tip of the insertion sheath in the gap before the anchor begins to move from an undeployed position, wherein distally advancing the insertion sheath in the gap rotates the anchor into a deployed position;

positioning the sealing plug and the anchor across the tissue puncture to close the tissue puncture.

68. (Previously Presented) The method of claim 67 wherein the tissue puncture is a blood vessel puncture.

69. (Previously Presented) The method of claim 67 wherein the tissue puncture closure device includes a filament configured to couple the sealing plug and the anchor together across the tissue puncture.

70. (Previously Presented) The method of claim 67 comprising moving the anchor away from the carrier tube and rotating the anchor to be transverse to the carrier tube.

71. (Previously Presented) A method of sealing a tissue puncture comprising:

inserting a tissue puncture closure device into the tissue puncture, the tissue puncture closure device including a carrier tube, an insertion sheath, a sealing plug, and an anchor, the carrier tube and the anchor being in contact with each other, the carrier tube including a recess in an outer surface of the carrier tube, the recess extending underneath the anchor;

positioning a tip of the insertion sheath in the recess so that the tip is between the carrier tube and the anchor before the anchor begins to move from an undeployed position, and distally advancing the insertion sheath in the recess rotates the anchor into a deployed position;

positioning the sealing plug and the anchor across the tissue puncture to close the tissue puncture.

72. (Canceled)

73. (Previously Presented) The method of claim 71 wherein the tissue puncture is a blood vessel puncture.

74-75. (Canceled)

76. (Previously Presented) The method of claim 71 wherein part of the recess is covered by the anchor.

77. (Previously Presented) The method of claim 71 wherein the tissue puncture closure device includes a filament configured to couple the sealing plug and the anchor together across the tissue puncture.